

## S.0 SUMMARY

### S.1 DESCRIPTION OF THE PROPOSED PROJECT

The Texas Department of Transportation (TxDOT) and the Federal Highway Administration (FHWA), as Joint Lead Agencies, propose the replacement of the Harbor Bridge and the reconstruction of portions of US Highway 181 (US 181), Interstate Highway 37 (I-37) and the Crosstown Expressway in Corpus Christi, Texas. The Joint Lead Agencies circulated a Draft Environmental Impact Statement (Draft EIS) for the proposed project on January 3, 2014, through a notice in the Federal Register and the Texas Register. The Joint Lead Agencies accepted comments on the Draft EIS for a period of 75 days (until March 18, 2014), a timeframe within which a Public Hearing was held (February 18, 2014). A total of 76 comments were received, including 69 public comments and seven comments from Cooperating and Participating agencies. Substantive issues raised in the comments received are summarized in **Section S.6**; all of the comments and responses thereto are compiled in the Public Hearing Summary.

The Harbor Bridge is located on US 181 approximately one-half mile north of the US 181 and I-37 interchange (see **Figure 1.0-1**). The project limits extend both north-south along US 181 and the Crosstown Expressway and east-west along I-37 and include: US 181 at Beach Avenue on the north; Crosstown Expressway at Morgan Avenue on the south; I-37 and Up River Road on the west; and I-37 and Shoreline Boulevard on the east.

Within the project area, US 181 is a six-lane divided facility with three 12-foot travel lanes in each direction. US 181 along the Harbor Bridge and approaches does not include shoulders. I-37 in the project area is also a six-lane divided facility with three 12-foot travel lanes in each direction with 10-foot shoulders. The proposed project would replace the Harbor Bridge and reconstruct the I-37/Crosstown Expressway interchange but would not add travel lanes to the facilities. Descriptions of the proposed alternatives are found in **Section S.4.2**.

The US 181 Harbor Bridge project is included in the Corpus Christi Metropolitan Planning Organization's (MPO) 2010–2035 Metropolitan Transportation Plan (MTP) and the 2013–2016 Statewide Transportation Improvement Program (STIP). Additionally, the proposed project is included in the MPO's draft 2015–2040 MTP and the pending 2015–2018 STIP. It is anticipated that the MPO will adopt the 2015–2040 MTP in November 2014 with a December 2014 effective date. The 2015–2018 STIP is anticipated to be approved by FHWA in November 2014.

The estimated construction cost (in 2013 dollars) for the proposed project ranges from \$558 to \$679 million; the total project cost is estimated to be \$1,071,422,202. It is anticipated that construction of the proposed project would begin in 2015 with an estimated completion date of 2020. An amendment to the 2015–2018 STIP to revise the proposed project's description, limits and funding consistent with this Final EIS will be submitted after FHWA approval of the initial 2015–2018 STIP. FHWA will not issue a Record of Decision (ROD) until after the proposed project is consistent with the applicable MTP and STIP.

## S.2 BACKGROUND AND HISTORY

TxDOT completed the first phase of planning and development for the project in the form of a feasibility study in 2003. This study evaluated whether the current Harbor Bridge was adequate to meet future travel demands, identified the engineering needs for improvements, and proposed a set of preliminary corridor alternatives to address the needs. The Feasibility Study evaluated the preliminary corridor alternatives on the basis of how well each alternative would address the identified needs for the project and the likely environmental and socioeconomic effects that could result. The Feasibility Study identified four initial build alternatives (Blue, Green, Red and Orange), and these alternatives were carried forward for evaluation in the Draft EIS.

Once the Feasibility Study was completed in 2003, TxDOT began the schematic development, environmental studies, and public involvement phase of the project, and a Notice of Intent (NOI) to develop an EIS was published in the Federal Register in 2005 to initiate this phase of the project. On March 20, 2007, a revised NOI was published to advise the public that the scope of the study and the study limits described in the original 2005 NOI had been expanded to include potential managed toll lanes. On November 3, 2010, the revised 2007 NOI was rescinded, via a notice in the Federal Register, because TxDOT and FHWA decided to remove tolling from consideration and return the study limits to their original extent. TxDOT and FHWA published a third NOI in the summer of 2011 under which the Draft EIS and Final EIS have proceeded.

Following publication of the NOI in 2011, TxDOT and FHWA prepared a Coordination Plan in accordance with the requirements of Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (23 USC Section 139). This Coordination Plan was circulated to the Cooperating agencies for review and comment and was formally approved by FHWA in October 2011.

As noted in **Section S.1**, the Draft EIS was circulated for public comment on January 3, 2014 and a Public Hearing was held on February 18, 2014. The Draft EIS identified a Preferred Alternative (the Red Alternative) and presented this at the Public Hearing; it was subsequently reclassified as the Recommended Alternative and is referred to as such throughout the Final EIS. This Final EIS also identifies the Red Alternative as the Recommended Alternative and documents the impacts of the Recommended Alternative where they may have changed relative to the Red Alternative as presented in the Draft EIS (see **Section S.5** for further discussion). This Final EIS also includes minor changes to address comments made by Cooperating and Participating agencies and the public.

On January 14, 2013, FHWA and the Federal Transit Administration issued interim joint guidance on implementing Section 1319(b) of the Moving Ahead for Progress in the 21st Century Act (MAP-21), Accelerated Decision-making in Environmental Reviews. Section 1319(b) directs the lead agency, to the maximum extent practicable, to expeditiously develop a single document that consists of a Final EIS and Record of Decision (ROD), unless certain conditions exist. Traditionally, and in accordance with the CEQ Regulations (40 CFR §1506.10(b)(2)), Final EIS and Record of Decision (ROD) documents are issued as separate documents with a minimum 30-day period between the Final EIS and ROD. Section 1319(b)

directs the lead agency, to the maximum extent practicable, to combine the Final EIS and ROD into a single document unless:

1. The Final EIS makes substantial changes to the proposed action that are relevant to environmental or safety concerns; or
2. There are significant new circumstances or information relevant to environmental concerns and that bear on the proposed action or the impacts of the proposed action.

Due to new traffic information that became available subsequent to the publication of the Draft EIS and the potential for this information to affect the results of certain analyses conducted as part of the Draft EIS, namely traffic noise and air quality, the Joint Lead Agencies have determined that issuing the Final EIS and ROD as separate documents could help to resolve any potential controversy related to these issues. In addition, the opportunity to review additional comments submitted after the Final EIS may assist the Joint Lead Agencies in developing additional mitigation commitments that could be included in the ROD.

### **S.3 NEED AND PURPOSE OF THE PROPOSED PROJECT**

The need for the proposed project has been identified from underlying transportation deficiencies with the Harbor Bridge and US 181 in the project area, which include maintaining the long-term operation of a US 181 crossing of the Corpus Christi Ship Channel and safety risks caused by design deficiencies.

#### **S.3.1 Maintaining the Long-term Operation of a US 181 Crossing of the Corpus Christi Ship Channel**

The Harbor Bridge is a fracture-critical structure, meaning the key structural elements supporting the bridge are not themselves supported by additional and redundant elements. This means that if a key support fails, the bridge would be in danger of collapse. This does not mean the bridge is inherently unsafe, only that the bridge design does not include additional structural members to carry loads in the event of a single member's failure.

In addition, corrosion is a major factor to overcome in maintaining the structural integrity of the Harbor Bridge. The steel bridge resides in a saltwater environment, requiring routine cleaning and painting to minimize corrosion. The combination of salt-laden air, year-round windy conditions, and warm air temperatures increases the potential for steel corrosion to occur (TxDOT 2012a).

The structural rehabilitation necessary to extend the service life of the existing Harbor Bridge another 15 to 20 years was completed in 2011. Since 1980, maintenance costs have exceeded \$70 million. An analysis by the TxDOT Bridge Division found that extending the service life of the current Harbor Bridge to 2086 would cost an estimated \$279,471,206 in 2012 dollars (or \$401,430,000 using probable 2012 net present value) (HDR, Inc. 2012). Periodic major rehabilitation or reconstruction projects will be required to maintain operability beyond the 15 to 20 years of additional service life provided by the 2011 rehabilitation. Even with major rehabilitation and repairs, however, the bridge will remain a fracture-critical structure over salt-water.

### **S.3.2 Safety Risks Caused by Design Deficiencies**

The current US 181 facility, including the Harbor Bridge, does not meet current FHWA and TxDOT roadway and bridge design standards. Neither the existing Harbor Bridge main span nor the US 181 approaches have shoulders, contributing to increased levels of congestion when even minor traffic accidents and breakdowns occur. The lack of shoulders also means the clearance between the travel lanes and the railing on the existing bridge does not meet current standards (TxDOT Roadway Design Manual Figure 3-15).

The existing US 181 approaches to the Harbor Bridge are on a 5 percent vertical grade that does not meet the current TxDOT standards, which is 4 percent for rolling terrain. Certain ramp lengths within the project limits do not provide sufficient acceleration or deceleration distances to meet current design standards for freeway ramps, and the current configuration of parts of the existing US 181 does not meet current design standards for exit ramp spacing.

Both US 181, including the Harbor Bridge, and I-37 within the project area are designated major hurricane evacuation routes (TxDOT 2011b). Given the design deficiencies outlined above, there would be an increased risk of US 181 becoming unnecessarily congested during an emergency hurricane evacuation due to the lack of shoulders on the Harbor Bridge and approach sections.

The purpose of the proposed project is to maximize the long-term highway operability of the US 181 crossing of the Corpus Christi Ship Channel and to improve safety for the traveling public, including during hurricane evacuations.

In addition to the primary purpose outlined above, TxDOT and FHWA seek to achieve the following objectives, to some degree, in implementing the proposed action: 1) Provide the transportation infrastructure to support the economic opportunities in the area; and 2) Consider the connectivity of US 181 to the local roadway system and address its effect on adjacent neighborhoods. The following **Section S.4** describes the process for evaluating the preliminary alternatives with respect to whether they would meet the need and purpose of the project and establishes, based on the screening criteria developed for the proposed project, the alternatives that are considered reasonable. Reasonable alternatives are further evaluated regarding how each addresses the project's objectives.

## **S.4 ALTERNATIVES CONSIDERED**

### **S.4.1 Identification of Reasonable Alternatives**

The alternatives analysis was completed in coordination with Cooperating and Participating federal, state, and local agencies and the public through the formal scoping process. Through this formal scoping process, a preliminary set of alternatives for the replacement of the Harbor Bridge was established (**Figure 2.1-1**). The Draft EIS scoping process began with four preliminary build alternatives (Blue, Green, Red and Orange), the No Build Alternative and a Transportation System Management (TSM) alternative (not depicted on **Figure 2.1-1**).

In response to comments received at the August 9, 2011, scoping meeting from the public, and Cooperating and Participating agencies, two new build alternatives were added to the preliminary set, the Tunnel Alternative and the West Alternative. Each of the preliminary alternatives if implemented, with the exception of the No Build Alternative and the TSM Alternative, would remove the existing Harbor Bridge and replace it with a new structure.

These preliminary alternatives were screened using a set of criteria (Measures of Effectiveness) established by TxDOT and FHWA for determining whether each alternative would meet the need and purpose for the project. **Table 2.1-1** in **Section 2.1** of the Final EIS includes a description of the measures of effectiveness. To meet the first need to maximize the long-term highway operability of the US 181 crossing of the Corpus Christi Ship Channel, an alternative would need to reduce the cost and frequency of structure maintenance relative to the existing condition and extend the operational life of the structure well beyond the life of the existing bridge. To meet these criteria, the proposed structure would be designed with non-corrodible building or maintenance materials (such as concrete) and other elements requiring less maintenance over the life of the structure; the bridge would not be designed as a fracture-critical structure; and the design-life of the proposed structure would be 75 to 100 years.

To meet the second need, improve safety for the public traveling on US 181 and to establish a reliable, long-term hurricane evacuation route, an alternative would need to correct the existing design deficiencies and upgrade the facility to current National Highway System (NHS) standards (23 CFR §625.4) and the standards in TxDOT's Roadway Design Manual and Bridge Design Manual where appropriate. These improvements would include providing shoulders on the bridge and approaches, reducing the vertical grade and horizontal curvature, providing longer ramps where needed and providing adequate spacing between ramps. To serve as a reliable, long-term hurricane evacuation route, the proposed improvements would be designed to meet the State's standards for determining transportation routes for hurricane evacuation in the Corpus Christi area.

Following this initial screening, four of the build alternatives were determined to meet the need and purpose for the proposed project (Green, Red, Orange and West Alternatives), while three alternatives were not (Blue, Tunnel and TSM Alternatives). The No Build Alternative and the TSM Alternative would not provide a reliable, long-term solution because these alternatives would not add shoulders to the existing bridge and would not address other design deficiencies related to safety. Without these more substantive corrections, US 181 under the No Build Alternative or the TSM Alternative would also not satisfy the hurricane evacuation criterion. Therefore, these alternatives would not meet the need and purpose for the proposed project.

The location of the Blue Alternative, veering out into the Corpus Christi Bay, would increase the likelihood that storm-surge debris could render the highway inoperable after a hurricane, an issue not applicable to the Green, Red, and Orange Alternatives, which span the inner harbor. The Tunnel Alternative would not be able to be designed to prevent the possibility of flooding, and implications of a flooded evacuation route include endangerment, loss of human life, and delay in recovery efforts

following a hurricane. Therefore, the Blue and Tunnel alternatives would not serve as reliable, long-term hurricane evacuation routes for the Corpus Christi area and would, for that reason, not meet the need and purpose for the project.

The Green, Red, Orange and West Alternatives would meet the project need and purpose and were carried forward for full consideration in the Draft EIS as reasonable alternatives. The No Build Alternative would not meet the need and purpose for the project but was nonetheless carried forward for comparison with the build alternatives in compliance with the CEQ regulations.

#### S.4.2 Description of Reasonable Alternatives

The estimated construction cost (including demolition), estimated right of way requirements, and other specific design features for each of the Reasonable Alternatives and the No Build Alternative are summarized in **Table S.4-1** and described below.

Table S.4-1 Design Comparison Summary							
Alternative	Bridge Height * (ft)	Alternative Length (mi)	Main Bridge Span Length (ft)	Length of Mainlanes on Structure (mi)	Estimated New Right of Way Required (ac)	Estimated Construction Cost (millions <sup>#</sup> )	Estimated Maintenance Cost <sup>^</sup>
Green	207	5.06	1,045	2.93	30.5	\$558	\$19,247,228
Recommended (Red)	216	5.98	1,515	2.76	58.5	\$637	\$27,903,876
Orange	210	6.00	1,208	2.80	49.8	\$630	\$22,249,427
West	206	7.59	1,500	3.42	69.8	\$679	\$27,627,600
No Build	138	NA	600	NA	0.0	NA	\$279,471,206

Source: US 181 Harbor Bridge EIS Team 2014

\*Equates to low-chord elevation necessary to provide 205-foot navigational clearance across the full width of the ship channel in the Inner Harbor

<sup>^</sup>Maintenance cost estimates based on a 75-year design life

<sup>#</sup>Estimates are in 2013 dollars.

##### S.4.2.1 No Build Alternative

The No Build Alternative would involve taking no action to address the safety and long-term operability problems identified in the need and purpose for the proposed project. Routine maintenance of the US 181 facility and the Harbor Bridge structure would continue, including pavement work, structural repairs, painting and other rehabilitation efforts, with maintenance costs estimated at \$279,471,206 (see **Table S.4-1**).

##### S.4.2.2 Green Alternative

The Green Alternative would follow the existing US 181 alignment with the location of the new bridge slightly offset to the west of the existing bridge to allow US 181 to remain open to traffic while construction proceeded on the new bridge.

The Green Alternative would have three 12-foot main lanes in each direction with a median barrier and 12-foot inside and 10-foot outside shoulders. This alternative would also include a 10-foot bicycle and pedestrian shared use path separated from the main lanes by a two-foot concrete barrier, extending from east of N. Staples Street on the south to Gulfstream Avenue on the north. Two-lane, one-way frontage roads in each direction would also be included north of the Inner Harbor between Beach Avenue and Breakwater Avenue.

This alternative would include a new interchange with I-37 with both the northbound I-37 connection to US 181 and the southbound US 181 connection to I-37 being modified relative to the existing facility. The Green Alternative would also include a reconstructed interchange at the Crosstown Expressway and I-37. Substantive changes in access are not proposed relative to the current condition of the interchange, although certain points of access to and from I-37 would be modified.

#### *S.4.2.3 Red Alternative (Recommended)*

The Red Alternative would be on a new location alignment west of existing US 181 and the Harbor Bridge. The new bridge would be 1,000 feet to the west of the existing bridge. This alternative would include a reconstructed interchange at I-37 and the Crosstown Expressway, including four direct connector ramps. The estimated construction cost, estimated right of way requirements, and other specific design features are summarized in **Table S.4-1**.

The Red Alternative would have three 12-foot lanes in each direction with a median barrier and 12-foot inside and 10-foot outside shoulders. This alternative would also include a 10-foot bicycle and pedestrian shared use path on the main span of the bridge and the bridge approaches, separated from main lane traffic by a two-foot concrete barrier, extending from Winnebago Street on the south to Beach Avenue on the north. Two-lane, one-way frontage roads in each direction would also be included north of the Inner Harbor between Beach Avenue and Coastal Avenue.

The existing Harbor Bridge and the US 181 embankment on both the north and south approaches to the bridge would be removed as part of this proposed alternative. The existing US 181 in this location would be converted to an at-grade boulevard section, improving and widening N. Broadway Street to access the existing surface streets downtown. The Tancahua Street and Carancahua Street bridges over I-37 would be reconstructed in their existing locations. The Red Alternative would reconstruct the I-37/Crosstown Expressway interchange, including four direct-connector ramps. Several points of access and the configuration of certain surface streets would be modified including the construction of a frontage road box at the intersection of the US 181/Crosstown Expressway frontage roads with the I-37 frontage roads. This multi-level intersection would include frontage roads in each direction with dedicated right-turn and left-turn lanes.

The Red Alternative was identified in the Draft EIS as the Preferred Alternative; it has subsequently been reclassified as the Recommended Alternative. Subsequent to the Public Hearing, and pursuant to 23 USC §139(f)(4)(d), the Joint Lead Agencies have developed the Recommended Alternative to a higher level of detail in order to facilitate the development of mitigation measures and to comply with other

federal agency requirements, such as the U.S. Department of the Army requirements under Section 404 of the Clean Water Act and the U.S. Coast Guard requirements under the General Bridge Act.

The minor design changes made to the Recommended Alternative since the publication of the Draft EIS include refinement of the proposed right of way line resulting from detailed land surveys establishing more precisely the location of existing rights of way as well as ownership of properties adjacent to the Recommended Alternative. This has resulted in a slightly more expanded proposed right of way line relative to that established for the Red Alternative in the Draft EIS. Another change in the design consists of a minor adjustment to the Lake Street alignment as it would cross US 181 north of I-37. The design of the US 181 bridge over the Inner Harbor has also been modified to reflect two separate bridge structures to carry the northbound and southbound lanes.

#### *S.4.2.4 Orange Alternative*

The Orange Alternative would be on a new location alignment west of existing US 181 and the Harbor Bridge. The location of the new bridge would be offset approximately 100 feet to the west of the existing bridge to allow the existing bridge to remain open to traffic while construction proceeded on the new bridge. This alternative would include a reconstructed interchange at I-37 and the Crosstown Expressway, including four direct-connector ramps. The estimated construction cost, estimated right of way requirements, and other design features are summarized in **Table S.4-1**.

The Orange Alternative would have three 12-foot lanes in each direction with a median barrier and 12-foot inside and 10-foot outside shoulders. This alternative would also include a 10-foot bicycle and pedestrian shared use path separated from main lane traffic by a two-foot concrete barrier, extending from Winnebago Street on the south to Beach Avenue on the north. Two-lane, one-way frontage roads in each direction would also be included north of the Inner Harbor between Beach Avenue and Elm Street.

The existing Harbor Bridge and the US 181 embankment on both the north and south approaches to the bridge would be removed as part of this proposed alternative. The existing US 181 would be converted to an at-grade boulevard section, similar to the Red Alternative, improving and widening N. Broadway Street to access the existing surface streets downtown. The Tancahua Street and Carancahua Street bridges over I-37 would be reconstructed in their existing locations.

#### *S.4.2.5 West Alternative*

The West Alternative would be on a new location alignment west of existing US 181 and the Harbor Bridge. The new bridge would be approximately a mile and a quarter to the west of the existing bridge. This alternative would include a new interchange at I-37 near Nueces Bay Boulevard and a reconstructed interchange at I-37 and the Crosstown Expressway, including reconstruction of two of the existing direct connector ramps and removing the other two existing direct connector ramps. The estimated construction cost, estimated right of way requirements, and other design features are summarized in **Table S.4-1**.



The path of the West Alternative runs parallel to and east of Nueces Bay Boulevard from I-37 to the Inner Harbor. North of the harbor, the eastward path of US 181 crosses the U.S. Army Corps of Engineers primary dredged spoils placement area for the ongoing maintenance dredging of the ship channel, a distance of approximately one and a third miles.

The West Alternative would have three 12-foot lanes in each direction with a median barrier and 12-foot inside and 10-foot outside shoulders. This alternative would also include a 10-foot bicycle and pedestrian shared use path separated from main lane traffic by a two-foot concrete barrier, extending from Peabody Avenue at the I-37 westbound frontage road on the south to Gulfspay Avenue on the north.

The existing Harbor Bridge and the US 181 embankment on both the north and south approaches to the bridge would be removed as part of this proposed alternative. The design would be the same as that for the Red and Orange Alternatives and reference can be made to **Section S.4.2.3** above for a description.

## **S.5 SUMMARY OF ENVIRONMENTAL CONSEQUENCES**

Implementation of any of the build alternatives would involve the commitment of natural, human, physical, and fiscal resources. A summary of the impacts of the No Build Alternative and the four reasonable build alternatives, including the Recommended Alternative, is included in **Table S.5-1**.

The primary impact categories affected by the design changes or changes in the affected environment since the Draft EIS are environmental justice, air quality, traffic noise, wetlands and waters of the US and hazardous materials, although each category is considered in the Final EIS. In the cases of air quality and traffic noise, categories that are greatly influenced by the projected volume of traffic on the proposed facility and elsewhere in the transportation network, new information not available at the time of the development of the Draft EIS has been considered. This information is traffic data derived from an update to the Corpus Christi MPO's regional travel demand model. The new 2040 model information has been used by project engineers to develop updated traffic projections for use in the modeling of traffic noise and air emissions from the Recommended Alternative. The inclusion of this new information and the resulting changes in impacts are consistent with 23 CFR §771.130 and do not result in new significant impacts relative to those evaluated in the Draft EIS.

Each of the proposed build alternatives would result in the use of one or more properties protected by FHWA's Section 4(f) regulations. The Federal Department of Transportation Act of 1966 included a special provision—Section 4(f)—which stipulated that FHWA and other federal agencies within the DOT cannot approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or historical sites of national, state or local significance unless:

- There is no feasible and prudent alternative to the use of the land; and
- The action includes all possible planning to minimize harm to the property resulting from use; or
- The administration makes a *de minimis* impact determination.

**Table S.5-1 Summary of Impact Comparison by Alternative**

Resource/Evaluation Category	Alternatives				
	Green	Recommended (Red)	Orange	West	No Build
<b>Consistency and Compatibility with Local Land Use Plans and Policies</b>	<ul style="list-style-type: none"> <li>• Inconsistent with future land use and community sustainability planning</li> <li>• Compatible with existing and future neighborhood land use</li> </ul>	<ul style="list-style-type: none"> <li>• Consistent with future land use and community sustainability planning</li> <li>• Incompatible with existing and future neighborhood land use</li> </ul>	<ul style="list-style-type: none"> <li>• Inconsistent with future land use and community sustainability planning</li> <li>• Incompatible with existing and future neighborhood land use</li> </ul>	<ul style="list-style-type: none"> <li>• Inconsistent with future land use and community sustainability planning</li> <li>• Incompatible with existing and future neighborhood land use</li> </ul>	<ul style="list-style-type: none"> <li>• Inconsistent with future land use and community sustainability planning</li> <li>• Compatible with existing and future neighborhood land use</li> </ul>
<b>Public Input</b>	<ul style="list-style-type: none"> <li>• Mixed support and opposition expressed by US 181 Harbor Bridge Technical and Citizens Advisory Committees</li> </ul>	<ul style="list-style-type: none"> <li>• Official endorsement by Corpus Christi MPO, City of Corpus Christi, Port of Corpus Christi Authority</li> <li>• Expressed support by US 181 Harbor Bridge Technical Advisory Committee</li> <li>• Mixed support and opposition expressed by US 181 Harbor Bridge Citizens Advisory Committees</li> </ul>	<ul style="list-style-type: none"> <li>• Mixed support and opposition expressed by US 181 Harbor Bridge Technical and Citizens Advisory Committees</li> </ul>	<ul style="list-style-type: none"> <li>• Opposition expressed by the US 181 Harbor Bridge Technical Advisory Committee and Citizens Advisory Committees</li> </ul>	<ul style="list-style-type: none"> <li>• General opposition expressed by the US 181 Harbor Bridge Technical and Citizens Advisory Committees and participants in community meetings</li> </ul>
<b>Residential Displacements</b>	15	21	42	13	0
<b>Business Displacements</b>	57	3	10	2	0
<b>Other Displacements</b>	3	4	3	1	0
<b>Economic Impacts (calculated based on construction cost of project using U.S. Bureau of Economic Analysis multipliers).</b>	<ul style="list-style-type: none"> <li>• \$670,535,437 increase in household earnings</li> <li>• 7,674 new jobs (for duration of project)</li> </ul>	<ul style="list-style-type: none"> <li>• \$761,544,606 increase in household earnings</li> <li>• 8,762 new jobs (for duration of project)</li> </ul>	<ul style="list-style-type: none"> <li>• \$757,476,431 increase in household earnings</li> <li>• 8,670 new jobs (for duration of project)</li> </ul>	<ul style="list-style-type: none"> <li>• \$816,784,096 increase in household earnings</li> <li>• 9,349 new jobs (for duration of project)</li> </ul>	<ul style="list-style-type: none"> <li>• No change</li> </ul>

**Table S.5-1 Summary of Impact Comparison by Alternative**

Resource/Evaluation Category	Alternatives				
	Green	Recommended (Red)	Orange	West	No Build
<b>Community Cohesion and Changes in Access</b>	<ul style="list-style-type: none"> <li>Leaves physical US 181 barrier in place between the Northside neighborhoods and downtown</li> <li>Elimination of northbound exit to Burleson Street reduces access to North Beach</li> <li>Reduction in access from downtown and South Central community</li> <li>Avoids separation of the Washington-Coles and Hillcrest neighborhoods</li> </ul>	<ul style="list-style-type: none"> <li>Separation of the Washington-Coles and Hillcrest neighborhoods affecting the cohesion of the Northside community</li> <li>Elimination of northbound exit to Burleson Street reduces access to North Beach</li> <li>Winnebago Street closure affects Northside mobility for drivers and non-drivers—comparable access replaced along Lake Street</li> </ul>	<ul style="list-style-type: none"> <li>Separation of the Washington-Coles and Hillcrest neighborhoods affecting the cohesion of the Northside community</li> <li>Substantial number of residential displacements; loss of 15% of households in Washington-Coles neighborhood affecting cohesion</li> <li>Elimination of northbound exit to Burleson Street reduces access to North Beach</li> <li>Winnebago Street closure affects Northside mobility for drivers and non-drivers—comparable access replaced along Lake Street</li> </ul>	<ul style="list-style-type: none"> <li>Elimination of northbound exit to Burleson Street reduces access to North Beach;</li> <li>Substantially reduced accessibility to US 181 and I-37 from the Hillcrest neighborhood, affecting hurricane evacuation and routine use</li> <li>Avoids separation of the Washington-Coles and Hillcrest neighborhoods</li> </ul>	<ul style="list-style-type: none"> <li>No direct impacts</li> </ul>
<b>Environmental Justice</b>	<ul style="list-style-type: none"> <li>Disproportionately high and adverse traffic noise impacts and residential displacement effects</li> </ul>	<ul style="list-style-type: none"> <li>Disproportionately high and adverse traffic noise impacts, residential displacement effects, and impacts to community cohesion</li> </ul>	<ul style="list-style-type: none"> <li>Disproportionately high and adverse traffic noise impacts, residential displacement effects, and impacts to community cohesion</li> </ul>	<ul style="list-style-type: none"> <li>Disproportionately high and adverse traffic noise impacts and reduced accessibility effects to US 181 and I-37 from the Hillcrest neighborhood</li> </ul>	<ul style="list-style-type: none"> <li>No disproportionately high and adverse impacts</li> </ul>
<b>Traffic Noise</b>	<ul style="list-style-type: none"> <li>522 sensitive receivers impacted</li> </ul>	<ul style="list-style-type: none"> <li>538 sensitive receivers impacted</li> </ul>	<ul style="list-style-type: none"> <li>480 sensitive receivers impacted</li> </ul>	<ul style="list-style-type: none"> <li>424 sensitive receivers impacted</li> </ul>	<ul style="list-style-type: none"> <li>None</li> </ul>

**Table S.5-1 Summary of Impact Comparison by Alternative**

Resource/Evaluation Category	Alternatives				
	Green	Recommended (Red)	Orange	West	No Build
<b>Air Quality</b>	<ul style="list-style-type: none"> <li>•Area is in attainment or unclassifiable for EPA's NAAQS for pollutants considered harmful to public health and the environment</li> <li>•Modeled CO emissions associated with the proposed project would not exceed EPA's NAAQS for CO</li> <li>•Overall MSAT emissions are expected to decline in the future</li> </ul>	<ul style="list-style-type: none"> <li>•Area is in attainment or unclassifiable for EPA's NAAQS for pollutants considered harmful to public health and the environment</li> <li>•Modeled CO emissions associated with the proposed project would not exceed EPA's NAAQS for CO</li> <li>•Overall MSAT emissions are expected to decline in the future</li> </ul>	<ul style="list-style-type: none"> <li>•Area is in attainment or unclassifiable for EPA's NAAQS for pollutants considered harmful to public health and the environment</li> <li>•Modeled CO emissions associated with the proposed project would not exceed EPA's NAAQS for CO</li> <li>•Overall MSAT emissions are expected to decline in the future</li> </ul>	<ul style="list-style-type: none"> <li>•Area is in attainment or unclassifiable for EPA's NAAQS for pollutants considered harmful to public health and the environment</li> <li>•Modeled CO emissions associated with the proposed project would not exceed EPA's NAAQS for CO</li> <li>•Overall MSAT emissions are expected to decline in the future</li> </ul>	<ul style="list-style-type: none"> <li>•Area is in attainment or unclassifiable for EPA's NAAQS for pollutants considered harmful to public health and the environment</li> <li>•Modeled CO emissions associated with the proposed project would not exceed EPA's NAAQS for CO</li> <li>•Overall MSAT emissions are expected to decline in the future</li> </ul>
<b>Tidal Wetlands and waters of the U.S.</b>	•Permanent impacts of 0.43 acre	•Permanent impacts of 1.47 acres	•Permanent impacts of 0.6 acre	•Permanent impacts of 1.34 acres	•None
<b>Marsh Habitat</b>	•0.43 acre	•0.73 acre	•0.5 acre	• 1.03 acres	•None
<b>Essential Fish Habitat</b>	•0.0 acre	•0.55 acre	•0.10 acre	•4.46 acres	•None
<b>Coastal Natural Resource Areas</b>	•Impacts to coastal wetlands and floodplains	•Impacts to coastal wetlands, floodplains and tidal waters	•Impacts to coastal wetlands, floodplains and tidal waters	•Impacts to coastal shore areas, coastal wetlands, floodplains and tidal waters	•None
<b>Cultural Resources</b>	<ul style="list-style-type: none"> <li>•Adverse effect to the Harbor Bridge system (comprised of the Harbor Bridge and six concrete bridges that carry US 181 in the project area).</li> <li>•<i>De minimis</i> impact to SAU&amp;G Depot</li> </ul>	•Adverse effect to the Harbor Bridge system	•Adverse effect to the Harbor Bridge system	•Adverse effect to the Harbor Bridge system	•None

Table S.5-1 Summary of Impact Comparison by Alternative

Resource/Evaluation Category	Alternatives				
	Green	Recommended (Red)	Orange	West	No Build
<b>Section 4(f) Uses</b>	<ul style="list-style-type: none"> <li>•Adverse effect to the Harbor Bridge System</li> <li>•Permanent incorporation of 92% of Lovenskiold Park</li> <li>•De minimis impact to SAU&amp;G Depot</li> </ul>	<ul style="list-style-type: none"> <li>•Adverse effect to the Harbor Bridge System</li> <li>•Permanent Incorporation of 45% of Lovenskiold Park</li> <li>•Permanent incorporation of 61% of T.C. Ayers Park</li> </ul>	<ul style="list-style-type: none"> <li>•Adverse effect to the Harbor Bridge System</li> <li>•Permanent Incorporation of 43% of Lovenskiold Park</li> <li>•Permanent Incorporation of 34% of T.C. Ayers Park</li> <li>•<i>De minimis</i> impact to Oveal Williams Senior Center</li> </ul>	<ul style="list-style-type: none"> <li>•Adverse effect to the Harbor Bridge System</li> <li>•Permanent incorporation of 2.83 acres (8%) of Rincon Channel Wetlands Interpretive Overlook</li> </ul>	<ul style="list-style-type: none"> <li>•None</li> </ul>
<b>Hazardous Materials</b>	<ul style="list-style-type: none"> <li>•Would displace gas station with Leaking Petroleum Storage Tank</li> <li>•Total volume of contaminated soil and groundwater would be 890 cu. yds./103,123 gal.</li> </ul>	<ul style="list-style-type: none"> <li>•Would displace gas station with Leaking Petroleum Storage Tank</li> <li>•Construction within previously identified area with soil and groundwater contamination</li> <li>• Total volume of contaminated soil and groundwater would be 6,671 cu. yds./436,289 gal.</li> <li>•Would require remediation of leaking petroleum storage tanks from site of former Washington Elementary School</li> </ul>	<ul style="list-style-type: none"> <li>•Would displace gas station with Leaking Petroleum Storage Tank</li> <li>•Construction within previously identified area with soil and groundwater contamination</li> <li>• Total volume of contaminated soil and groundwater would be 6,420 cu. yds./388,694 gal.</li> <li>•Would require remediation of leaking petroleum storage tanks from site of former Washington Elementary School</li> </ul>	<ul style="list-style-type: none"> <li>•Would displace gas station with Leaking Petroleum Storage Tank</li> <li>•Would displace two 200,000 gallon aboveground petroleum storage tanks</li> <li>• Total volume of contaminated soil and groundwater would be 838 cu. yds./95,190 gal.</li> </ul>	<ul style="list-style-type: none"> <li>•None</li> </ul>

Table S.5-1 Summary of Impact Comparison by Alternative					
Resource/Evaluation Category	Alternatives				
	Green	Recommended (Red)	Orange	West	No Build
<b>Visual and Aesthetic Impacts</b>	<ul style="list-style-type: none"> <li>•Least visually intrusive</li> <li>•Most able to convey landmark status (refers to the quality of being a highly recognizable feature, rather than a “historic landmark”)</li> <li>•Most able to contribute to an iconic Corpus Christi skyline</li> </ul>	<ul style="list-style-type: none"> <li>•Visually and aesthetically intrusive in the Northside community</li> <li>•Able to still convey landmark status</li> <li>•Less able to contribute to an iconic Corpus Christi skyline</li> </ul>	<ul style="list-style-type: none"> <li>•Most visually and aesthetically intrusive in the Northside community</li> <li>•Able to convey landmark status</li> <li>•Able to contribute to an iconic Corpus Christi skyline</li> </ul>	<ul style="list-style-type: none"> <li>•Less visually and aesthetically intrusive in the Northside community</li> <li>•Visually and aesthetically intrusive in the Westside community (Oak Park neighborhood)</li> <li>•Least able to convey landmark status</li> <li>•Not able to contribute to an iconic Corpus Christi skyline</li> </ul>	<ul style="list-style-type: none"> <li>•Not visually intrusive</li> <li>•Conveys landmark status</li> <li>•Contributes to iconic Corpus Christi skyline</li> </ul>
<b>Construction Phase Effects</b>	<ul style="list-style-type: none"> <li>•Greater user effects (travel delays, alteration of traffic patterns for a longer duration) due to the construction overlap with the existing US 181 alignment</li> </ul>	<ul style="list-style-type: none"> <li>•User effects (travel delays, alteration of traffic patterns)</li> </ul>	<ul style="list-style-type: none"> <li>•User effects (travel delays, alteration of traffic patterns)</li> </ul>	<ul style="list-style-type: none"> <li>•User effects (travel delays, alteration of traffic patterns)</li> <li>•Affects U.S. Army Corps of Engineers’ ability to fulfill their obligation in the event emergency dredging operations were called for to maintain the ship channel</li> <li>•Potential adverse water quality effects from disturbance of dredged sediments in Upland Confined Placement Area</li> </ul>	<ul style="list-style-type: none"> <li>•None</li> </ul>

Source: US 181 Harbor Bridge EIS Team 2014

If the analysis concludes that there is no feasible and prudent avoidance alternative to the use of Section 4(f) property, then FHWA may approve only the alternative that causes the least overall harm. Because there is no total avoidance alternative under any of the proposed build alternatives, an analysis of the alternative that causes the least overall harm was conducted. The factors considered in the analysis of the least overall harm alternative are defined in FHWA's Section 4(f) regulations at 23 CFR §774.3(c). The first four factors relate to the net harm that each alternative would cause to Section 4(f) property, while the remaining three factors take into account any substantial problems the alternatives may have with issues other than Section 4(f). The results of the detailed evaluation of each of these seven factors are summarized in **Table S.5-2**.

<b>Table S.5-2 Summary of Least Overall Harm Analysis</b>				
<b>Least Overall Harm Criteria</b>	<b>Build Alternatives</b>			
	<b>Green</b>	<b>Recommended (Red)</b>	<b>Orange</b>	<b>West</b>
Ability to Mitigate Adverse Impacts to 4(f)	Medium	Medium	Medium	High
Severity of Harm to 4(f) after Mitigation	Medium	Medium	Medium	Medium
Relative Significance of 4(f) Property	Medium	Medium	Medium	High
Views of Officials with Jurisdiction	City of Corpus Christi - In agreement with the determination of project impacts and favorable toward proposed mitigation measures	City of Corpus Christi - In agreement with the determination of project impacts and favorable toward proposed mitigation measures	City of Corpus Christi - In agreement with the determination of project impacts and favorable toward proposed mitigation measures	City of Corpus Christi - In agreement with project impacts and less favorable toward proposed mitigation measures
	THC - concurred with effect determination and mitigation	THC - concurred with effect determination and mitigation	THC - concurred with effect determination and mitigation	THC - concurred with effect determination and mitigation
Degree to which the Alternative Meets Need and Purpose and Objectives	Medium	High	Medium	Low
Magnitude of Impacts to Non-4(f) Resources After Mitigation	Medium	Low	High <sup>#</sup>	High
Cost Comparison	\$558 million	\$637 million	\$630 million	\$679 million

Source: US 181 Harbor Bridge EIS Team 2014

NOTE: high = TxDOT has the ability to reasonably mitigate the potential effects from the use of the Section 4(f) property; medium = some of the effects from the use could be offset by mitigation while others could not; low = TxDOT does not have the ability to reasonably mitigate the effects.

<sup>#</sup>The evaluation in Section 5.6.2.6 presents the Orange Alternative as the alternative with the highest degree of adverse impacts to non-Section 4(f) resources after mitigation.

### S.5.1 Identification of the Recommended Alternative

The Draft EIS identified the Red Alternative as the Preferred Alternative—it has subsequently been reclassified as the Recommended Alternative—as a result of the various analyses, public involvement and engineering design conducted for the Draft EIS. The Red Alternative is the Recommended Alternative after considering the degree to which it meets the proposed project’s need and purpose and the impacts to the environment after applying minimization and mitigation measures. Also, because of the proposed project’s use of one or more properties protected by Section 4(f) regulations, it was necessary to apply special evaluation criteria. Since there is no prudent and feasible alternative that avoids the use of Section 4(f) property, a least overall harm evaluation was developed based on the seven factors set forth in 23 CFR §774.3(c). The balancing of these considerations leads to the conclusion that the Red Alternative would cause the least overall harm relative to the other alternatives and was therefore identified as the Recommended Alternative.

**Table S.5-3** provides a summary of the evaluation of all the factors considered in the comparison of alternatives for the proposed project, including meeting the need, purpose and objectives of the proposed project with the least overall harm, and maximizing engineering considerations. The Red Alternative best meets the need and purpose and objectives of the proposed project in comparison to the other alternatives in that it would remove the US 181 barrier from downtown, improving mobility and access into and out of the SEA District and the downtown area and supporting the City’s ability to implement its long-term community sustainability planning initiatives. The Red Alternative also preserves much of the existing connectivity to the facility from adjacent neighborhoods relative to the other build alternatives, including accommodating bicycle and pedestrian modes of travel to and from the adjacent communities. The Red Alternative also maximizes the engineering considerations and accommodates the navigational transportation needs of the Port of Corpus Christi. Also, the Red Alternative was the only alternative to receive official endorsement by Corpus Christi MPO, the City of Corpus Christi, and the Port of Corpus Christi Authority.

<b>Table S.5-3 Alternative Comparison Summary</b>					
<b>Alternatives</b>	<b>Meets Purpose and Need (Yes/No)</b>	<b>Meets Purpose and Need and Objectives (High/Medium/Low)</b>	<b>Least Overall Harm (Rank 1-5)</b>	<b>Maximizes Engineering Considerations (High/Medium/Low)</b>	<b>Recommended Alternative (Yes/No)</b>
Green	Yes	Medium	2	Low	No
<b>Red</b>	<b>Yes</b>	<b>High</b>	<b>1</b>	<b>High</b>	<b>Yes</b>
Orange	Yes	Medium	3	Medium	No
West	Yes	Low	4	Low	No
No Build	No	NA	5	NA	No

Source: US 181 Harbor Bridge EIS Team 2013

The Red Alternative is identified in the Final EIS as the Recommended Alternative, along with the information in support of why it is recommended. The identification of the Recommended Alternative



does not mean that the Joint Lead Agencies have made a decision or that the Recommended Alternative has been selected. Cooperating and Participating agencies and the public have an opportunity to review and comment on this Final EIS and the identification of the Recommended Alternative. After considering the comments received, TxDOT and FHWA will determine whether the Red Alternative should be selected and document the selection in the ROD.

## **S.6 ISSUES RAISED BY AGENCIES AND THE PUBLIC**

A total of 76 comments were received on the Draft EIS, including 69 public comments and seven comments from Cooperating and Participating agencies. These comments raised several issues associated with the proposed project and the analysis of the potential social, economic and environmental impacts. Substantive comments were received from the U.S. Environmental Protection Agency (EPA), the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of the Interior (DOI) and the School of Law Environmental Clinic at the University of Texas at Austin (UT). These comments and the responses thereto are summarized in this section; all of the comments received have been considered and the responses to all comments are included in the Public Hearing Summary prepared for the proposed project.

### **S.6.1 Substantive Comments from the U.S. EPA**

As a Cooperating Agency, the EPA reviewed the Draft EIS and submitted comments via letter dated March 18, 2014. The substantive comments from the EPA pertained to environmental justice and impacted communities; the proposed mitigation to offset disproportionately high and adverse effects to minority populations and low-income populations; and indirect and cumulative effects related to the Port of Corpus Christi.

The comments regarding environmental justice and mitigation pointed out that the Draft EIS disclosed that the Red Alternative would have several adverse effects, including residential displacements, traffic noise, visual and aesthetic effects and community cohesion and access effects, and that the conceptual mitigation proposed to offset those effects would need to be more specific to show that the effects were not disproportionately high and adverse. The Draft EIS stated explicitly that the mitigation proposals were conceptual and that additional community involvement was necessary to solidify the proposals. Substantial community involvement as further described below was conducted between the publication of the Draft EIS and the development of this Final EIS, and much of that focused on finalizing mitigation proposals to address adverse effects to minority and low-income communities. A more specific set of mitigation proposals is included in this Final EIS.

In January 2014, subsequent to the publication of the Draft EIS, TxDOT held a series of eight neighborhood meetings in the various project area communities affected by the project which offered further opportunities for the public to have input into the proposed mitigation plan. Along with the neighborhood meetings, TxDOT held a series of storefront meetings every Tuesday and Thursday between January 7 and March 13, 2014. The Tuesday meetings were held at the Oveal Williams Senior Center in the Northside community, and the Thursday meetings were held at La Retama Public Library in

the Evans Elementary neighborhood. Additionally, TxDOT held individual meetings with stakeholders including Corpus Christi Black Chamber of Commerce, Corpus Christi Hispanic Chamber of Commerce, the Corpus Christi Independent School District, St. Paul United Methodist Church, the United Way of the Coastal Bend and the Hillcrest Residents Association. These meetings were informative and yielded important feedback regarding the level of importance the community would likely assign to certain types of mitigation. Among the most important mitigation types, were recreational enhancement, historic preservation, and neighborhood sustainability.

Following the gathering of input from all of these public involvement opportunities, the Joint Lead Agencies further defined the conceptual mitigation plan and presented that plan to the project's Citizens Advisory Committee on July 8, 2014. This meeting gave the Citizens Advisory Committee an opportunity to review the proposed mitigation measures for potentially adverse project impacts in minority and low-income neighborhoods. The feedback from that meeting was captured by the Joint Lead Agencies and further refinements to the proposed mitigation were made as a result. The Final EIS does determine the effects to minority and low-income neighborhoods to be disproportionately high and adverse, and mitigation is proposed where those effects could not be avoided or minimized.

The comments regarding indirect and cumulative effects related to development activity at the Port of Corpus Christi focused on the perceived connection between the proposed project and reasonably foreseeable future events, including potential increases in shipping, expanded rail activity, and the potential for cruise ships to call the Port. The Joint Lead Agencies, through coordination with the Port of Corpus Christi Authority and a selected panel of local land use experts, determined that the replacement of the Harbor Bridge at a higher elevation would not independently cause increases in shipping or other Port related activity to occur. Therefore, these nonetheless reasonably foreseeable events are addressed as cumulative effects of the proposed project. Additional data and analysis are included in the Final EIS to more thoroughly evaluate these potential effects and to address the programmatic mitigation in place by other agencies to lessen those effects, primarily through control measures including but not limited to: heavy duty diesel regulations; locomotive and marine compression-ignition engines emission reductions; Tier 3 motor vehicle emission and fuel standards; Prevention of Significant Deterioration (PSD) for all NAAQS for Nueces County; new international standards for marine diesel engines, fuels, and emission requirements; and numerous EPA and TCEQ regulations limiting emissions from both point and area sources. Through continued coordination with the EPA as a Cooperating Agency, FHWA and TxDOT acknowledge the difference in the two federal agency approaches to addressing these effects (as cumulative rather than indirect); however, the effects of raising the height of the bridge are nonetheless analyzed and disclosed in accordance with 40 CFR §1502.1.

### **S.6.2 Substantive Comments from the U.S. HUD**

Substantive comments from HUD were primarily related to the potential for traffic noise effects to impact residents living in properties receiving federal assistance through the department and the potential for those effects to lessen the value of the properties themselves. HUD pointed to its internal noise guidelines and calculations indicating substantial noise effects from the proposed project. The

Joint Lead Agencies agree that the proposed project would result in traffic noise effects and that effects would occur at HUD-assisted residential properties. Noise barriers are proposed at two of these properties, the Navarro Place Apartments along the southbound frontage road of the Crosstown Expressway, and the Elliott Grant Homes along the westbound frontage road of I-37. A third property, the D.N. Leathers I housing complex, also along the westbound frontage road of I-37, would also be affected by traffic noise. Noise barriers were studied in this location and found not to be reasonable and feasible according to FHWA regulations (23 CFR §772). HUD recommended additional indoor noise abatement be considered, including insulated windows and building insulation. The Joint Lead Agencies are bound by federal regulations to consider certain types of noise abatement when traffic noise levels exceed a noise abatement criteria threshold; however, insulation is only considered for public buildings such as schools or hospitals. Traffic noise effects for residential properties are being mitigated to the extent practicable through reasonable and feasible noise abatement and in accordance with FHWA regulations.

### **S.6.3 Substantive Comments from the U.S. DOI**

The comments from DOI were generally concerned with the process for resolving adverse effects to historic properties under Section 106 of the National Historic Preservation Act and the conversion of property from T.C. Ayers Park given the Urban Parks and Recreation Recovery Act funding that was utilized there.

The National Register of Historic Places-eligible historic properties affected by the proposed project are the Harbor Bridge system and the SAU&G Railroad Depot. Only the Green Alternative would affect the SAU&G Railroad Depot, and it would only require a small amount of right of way from the parking lot area. TxDOT historians determined that this alternative would have no adverse effect to the historic property, and the Green Alternative would have only a *de minimis* impact on the property.

The adverse effects to the Harbor Bridge system would be resolved through the development of programmatic mitigation outlined by the Advisory Council on Historic Preservation in its *Program Comment Issued for Streamlining Section 106 Review for Actions Affecting Post-1945 Concrete and Steel Bridges*, published in the Federal Register on November 18, 2012. Complete information about TxDOT's historic bridge program and programmatic bridge mitigation efforts can be found at <http://www.txdot.gov/inside-txdot/projects/studies/statewide/historic-bridges.html>. There is also information available about the on-going efforts at <http://www.thc.state.tx.us/learn/historic-bridges-texas>.

The determinations of effect for historic resources ("adverse effect" with programmatic mitigation for the Harbor Bridge system and "no adverse effect" for several other resources) were reviewed by the Section 106 consulting parties, including the Corpus Christi Landmarks Commission, the Nueces County Historical Commission, and the Historic Bridge Foundation. These findings of effect and the proposed mitigation for the Harbor Bridge system were individually coordinated with SHPO/THC. SHPO/THC concurred with TxDOT determinations in a letter dated June 6, 2013.

Regarding the UPARR grant funding used for T.C. Ayers Park, the City of Corpus Christi is required to coordinate with the DOI independently to complete the transfer of the UPARR funding agreement to the proposed Washington Park. This transaction would be necessary prior to TxDOT's acquisition of City of Corpus Christi right of way from T.C. Ayers Park.

#### **S.6.4 Substantive Comments from the UT School of Law Environmental Clinic**

Substantive comments received from the School of Law Environmental Clinic at the University of Texas at Austin (UT Law) covered several topics: consideration of reasonable alternatives; consideration of indirect effects, cumulative air quality effects; and environmental justice effects. The comments related to the consideration of reasonable alternatives centered on the assumption that alternatives that would not raise the elevation of the bridge should be considered reasonable and therefore subject to detailed analysis in the EIS. TxDOT and FHWA followed the process as prescribed by the SAFETEA LU and, through a detailed scoping phase that included two public meetings and two meetings with potential Cooperating and Participating agencies, established a range of reasonable alternatives. As part of its contribution as a Cooperating agency, the U.S. Coast Guard advised TxDOT and FHWA to coordinate directly with the Port of Corpus Christi Authority to determine the navigational interests of the region and to plan the project to account for multiple modes of transportation now and in the future. TxDOT and FHWA, as part of their respective missions, are also committed to developing projects that account for modes of travel other than just highways, and consider replacing the Harbor Bridge at a height that can accommodate today's waterborne freight movements, as opposed to those of the 1959 era in which the current Harbor Bridge was built, to be prudent planning.

With respect to the potential for the project to result in indirect effects, the comments relate the Harbor Bridge project to other projects associated with ports nationwide and assert that the analysis completed for the Harbor Bridge EIS should match the analysis completed for other EISs for other projects. The need and purpose of the Harbor Bridge project includes correcting safety issues caused by design deficiencies and maximizing long-term operability of the crossing of the ship channel; the need and purpose does not include raising the bridge height for the Port of Corpus Christi. The decision to raise the elevation of the bridge as part of this proposed action was a result of several considerations. First, the existing Harbor Bridge provides 138 feet of vertical clearance at mean high water, which means the maximum air-draft for vessels calling at the Port's Inner Harbor is 138 feet. The existing Harbor Bridge was designed and built in the 1950s and, as a result, it accommodates vessel sizes of the post-World War II era. As the maritime industry has evolved with the expansion of global trade, the growth in size of modern ships and cargo has outgrown the Harbor Bridge's 138-foot vertical restriction. The 138-foot navigational restriction is impacting operations at the port according to a 2010 Cambridge Systematics, Inc. report, but also the ability of the state to meet the increasing freight traffic demands expected as a result of the expansion of the Panama Canal. The 138-foot restriction also affects vessels with a light air draft greater than 138 feet, requiring them to take on ballast water after unloading to reduce air draft and clear the bridge when exiting the Inner Harbor. Secondly, considering the minimum 201- to 205-foot vertical restriction at the Panama Canal and the importance the expansion of the canal is projected

to play in the overall State plan for accommodating the increase in freight traffic along the Gulf Coast, the vertical restriction of the bridges proposed for the project is 205 feet. Lastly, with respect to regional connectivity, the MPO considers US 181 a priority corridor in the future expansion of Interstate Highway 69 (I-69) to connect directly to the Port of Corpus Christi, the seventh largest port in the United States in total tonnage and the primary economic engine for the Coastal Bend. As Joint Lead Agencies, TxDOT and FHWA need to consider multiple modes of transportation in the development of this regionally important project, including waterborne freight, and these modes have been considered in the context of a 75- to 100-year project design life as part of the objective to provide the transportation infrastructure to support economic opportunities in the area. The effects of raising the Harbor Bridge, however, are nonetheless considered in the EIS as reasonably foreseeable cumulative effects.

With respect to cumulative air quality effects, the UT Law comments focus on the question of whether to analyze effects based on localized conditions. The EIS addresses potential cumulative effects of the proposed project in relation to air quality and identifies the various industrial activities that could contribute to cumulative air quality impacts. The current health of the air quality resource is not impaired in this region, as evidenced by its attainment or unclassifiable status under EPA regulations implementing the Clean Air Act, and there are regulatory control measures that are intended to prevent those previously described industries from negatively impacting air quality. The EIS specifically identifies many of those control measures which are intended to prevent these industries from creating an adverse cumulative air quality impact. Federal and state regulatory updates, monitoring, and modeling show that air quality is improving in this area and support the expectation that it would continue to do so in the future, regardless of increases in traffic volumes and industry growth. Specifically, control measures that are discussed include but are not limited to: heavy duty diesel regulations; locomotive and marine compression-ignition engines emission reductions; Tier 3 motor vehicle emission and fuel standards; PSD for all NAAQS for Nueces County; new international standards for marine diesel engines, fuels, and emission requirements; and numerous EPA and TCEQ regulations limiting emissions from both point and area sources.

With respect to environmental justice effects, the comments from UT Law focus on the effect of the proposed project on property values in minority and low-income neighborhoods, and the need for mitigation to address the impacts of the project on viability, livability and property values within these neighborhoods. The purpose of the project is to improve safety for the traveling public, including during hurricane evacuations, and the Joint Lead Agencies intend to do this by replacing the existing bridge with a new bridge that is consistent with current design standards and by improving portions of US 181 consistent with current design standards. The EIS considers the effects of the proposed project that could be beneficial and potentially adverse to minority and low-income populations and identifies the effects on the neighborhoods adjacent to the project. The impacts analyzed include displacements and relocation, economic and employment, community cohesion and accessibility, visual and aesthetic impacts, traffic noise, air and water quality, safety, and construction phase effects. Indirect and cumulative impacts to community resources are also identified in the EIS. Property values were not specifically analyzed because it would be speculative for TxDOT to do so. Property values are dependent on a number of different factors including the economy and real estate market in the area, the quality of

amenities offered in the area (such as schools, parks, and other public services), and the subjective needs and desires of potential purchasers. A decrease or increase in property values as a result of this project cannot be quantified in a meaningful way. The EIS includes a discussion of the indirect economic impacts on the neighborhoods; however, the CEQ regulations describe indirect effects as needing to be “reasonably foreseeable.” Given the analysis, it is too speculative to predict how the project would affect real property values, and would not be prudent for a state transportation agency to make predictions like these for privately-owned property. Development of mitigation measures has been ongoing since publication of the Draft EIS, and TxDOT and FHWA have continued to develop specific mitigation measures, with public input, to mitigate and minimize adverse effects. The EIS includes a discussion of and commitment to practicable mitigation measures that would be implemented to minimize the adverse effects of the Recommended Alternative.

## **S.7 OTHER FEDERAL ACTIONS REQUIRED FOR THE PROJECT**

The proposed action would require two federal permits prior to construction: a U.S. Department of the Army Individual Permit under Section 404 of the Clean Water Act; and a U.S. Coast Guard Bridge Permit under the General Bridge Act. The Joint Lead Agencies are actively pursuing these permits and any commitments contained in these permits once issued would convey to TxDOT for implementation.

## **S.8 OTHER FEDERAL ACTIONS IN THE VICINITY OF THE PROPOSED PROJECT**

The Final EIS for the Channel Improvement Project was approved by the USACE in 2003 and the ROD was issued 2004. In 2009, Congress authorized the channel improvement project, which included deepening the Corpus Christi Ship Channel to 52 feet; widening the channel to 530 feet; adding 200-foot-wide, 12-foot-deep barge shelves across Corpus Christi Bay; and extending the La Quinta channel for 1.4 miles at a depth of 39 feet, plus two feet of advance maintenance. The authorization also included ecosystem restoration features to protect endangered species, wetlands, and sea grasses. Due to the time elapsed between the ROD and Congressional authorization, a reevaluation of the original studies was required. The Port and the USACE agreed to prioritize the La Quinta improvements and, following the reevaluation, finalized negotiations for a Project Partnership Agreement to construct the La Quinta extension and related ecosystem restoration features of the project. In February 2014, the 1.4-mile, 41-foot deep La Quinta Ship Channel extension was completed, along with construction of an ecosystem restoration feature and breakwater and shallow water habitat beneficial use site. The environmental reevaluation of deepening and widening of the main ship channel is ongoing.